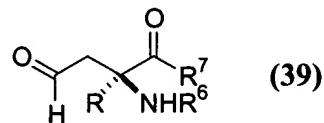


2. A process according to claim 1 wherein said polypyrrolinones are substantially diastereomerically pure.

3. A process according to Claim 1 wherein the initial  $\alpha$ -amino- $\alpha$ -substituted-1,4-dioxo compound is a compound (39) and R<sup>6</sup> is an alkoxy carbonyl protecting group, R is as defined above and R<sup>7</sup> is a lower alkoxy group,



4. A process according to claim 1 wherein the oxidant in step (c) is oxalyl chloride, a tertiary amine and DMSO.

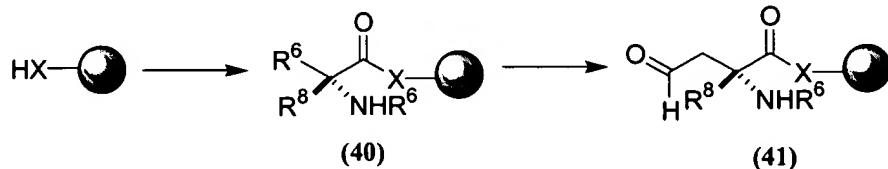
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5. A process according to Claim 4 wherein the tertiary amine is DBU or di-*iso*-propylethyl amine.
6. A process according to Claim 1 wherein the crown ether in step (b) is 18-crown-6.

15 7. A process according to Claim 1 wherein the base in step (b) is potassium hexamethyldisilazane.

8. A solid-phase process according to claim 1 wherein R<sup>7</sup> is a carboxyl or carbamido linked to a solid support further comprising the steps of:

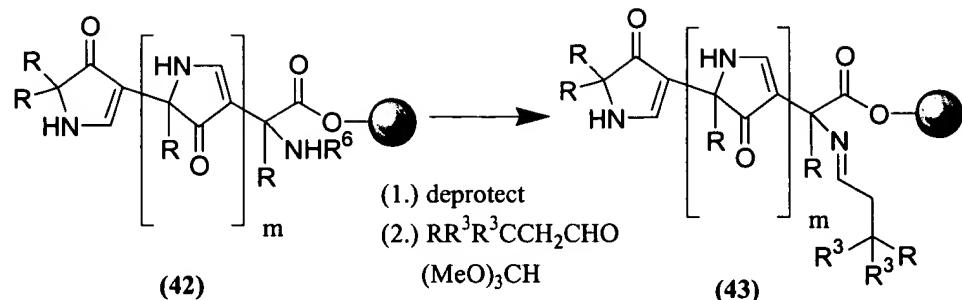
20 (f) attaching a latent aldehyde (40) to a solid support wherein and converting the latent aldehyde to  
an aldehyde (41);



wherein:

$R^8$  is 3-methyl-1-but-2-enyl, 2,2-dimethoxyethyl, 2-hydroxyethyl, and  
 $X$  is nitrogen or oxygen;

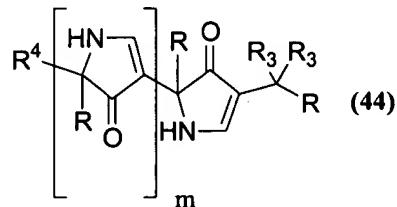
25 (g) repeating steps (a)-(c) m times and terminating the synthesis as in step (e) to produce  
polypyrrolinone (42);



(h) cleaving the polypyrrolinone from the resin by deprotecting the  $\alpha$ -amino group, and exposing the  $\alpha$ -amino acid to a plurality of treatments with an aldehyde, trimethylorthoformate, optionally in the presence of a solvent, to produce the corresponding imine (43); and,

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(i) cyclizing (43) by forming the metalloimine carbanion with base, optionally in the presence of a crown ether, to produce a pyrrolinone (44).



9. A process according to claim 7 wherein the oxidant in step (c) is oxalyl chloride, a tertiary amine and  
10 DMSO.

10. A process according to Claim 7 wherein the tertiary amine is DBU or di-*iso*-propylethyl amine.

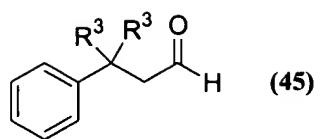
11. A process according to Claim 7 wherein the crown ether in step (b) is 18-crown-6.

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12. A process according to Claim 7 wherein the base in step (b) is potassium hexamethyldisilazane.

13. A process according to Claim 7 wherein R<sup>6</sup> is a trialkylsilylethoxycarbonyl group.

20 14. A process according to Claim 7 wherein the aldehyde in step (h) is a 3-phenylpropionaldehyde (**45**) derivative optionally substituted at the 3-position with one or two R<sup>3</sup> substituents.



15. A process according to Claim 7 wherein the aldehyde in step (h) is 3-phenylpropionaldehyde.